

## **Missouri Life Sciences Research Board: Research and Commercialization Projects**

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### **Request for Proposals**

LSRB 2009-001

### **Proposal Deadline (due by 5 p.m. CST):**

July 1, 2009

## **Summary of Program Requirements**

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### **Program Title:**

Letter of Intent for Research and Commercialization Project Grants

### **Statutory Purpose:**

Moneys in the life sciences research trust fund shall be used strategically, in cooperation with other governmental and not-for-profit private entities, to enhance the capacity of the state of Missouri's ability to perform research to better serve the health and welfare of the residents of the state of Missouri as a center of life sciences research and development by building on the success of research institutions located in Missouri, creating in and attracting to Missouri new research and development institutions, commercializing the life sciences technologies developed by such institutions, and enhancing their capacity to carry out their respective missions.

### **Program Officers:**

Bill Anderson, Deputy Director, Missouri Technology Corporation.  
Telephone: (573) 522-2293

Jason R. Hall, Executive Director, Missouri Technology Corporation.  
Telephone: (573) 526-2423.

Stacey Hirst, Program Manager, Missouri Department of Economic Development.  
Telephone: (573) 526-1558.

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## **Introduction**

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In 2003, the Missouri General Assembly passed and the Governor signed into law H.B. 688, creating the Missouri Life Sciences Research Board (MLSRB).

According to the statute, "moneys in the life sciences research trust fund shall be used strategically, in cooperation with other governmental and not-for-profit private entities, to enhance the capacity of the state of Missouri's ability to perform research to better serve the health and welfare of the residents of the state of Missouri as a center of life sciences research and development by building on the success of research institutions located in Missouri, creating in and attracting to Missouri new research and development institutions, commercializing the life sciences technologies developed by such institutions, and enhancing their capacity to carry out their respective missions."

### **Limitation on Funding for Fiscal Year 2010 Awards**

Pursuant to language passed by the General Assembly in HB 7 and that provided funds to the Missouri Department of Economic Development for the Missouri Life Sciences Research Trust Fund in fiscal year 2010, the scope of research will focus on *agriculture research, animal science, plant science, medical devices, biomaterials and composite research, nanotechnology related to drug development and delivery, diagnostics, clinical imaging, and information technology related to human health.*

### **Request for Submission of Letters of Intent for Research and Commercialization Proposals**

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By means of this request for proposals, the Life Sciences Research Board is marking the third year in the process of implementing the Life Sciences Trust Fund.

### **Steps for Fiscal Year 2010 Life Sciences Trust Fund Research and Commercialization Proposals**

#### **Step One**

The Missouri Life Sciences Research Board will use a two step submission process in order to initiate projects pursuant to this request for proposal.

#### **Letter of Intent**

To begin the grant process, researchers seeking funds are asked to submit a 5 page "letter of intent" summarizing the proposed project. Based on the letters of intent, the MLSRB will prioritize the projects and invite full grant applications from those most meritorious. A letter of intent is a brief conceptual 'snap-shot' of your Formal Proposal. The Letter of Intent will allow the MLSRB to review the applicant's proposal in a useable and informative way, as well as gain perspective on the entire applicant pool. Please keep this in mind as you write your Letter of Intent: it should be brief, specific, and to the point, and include a brief budget.

**The letter of intent is required for all applicants.** The MLSRB will evaluate all letters of intent against the evaluation criteria contained in this solicitation without regard to other letters of intent submitted.

**To be considered, applicants shall submit a letter of intent proposal to the MLSRB by July 1, 2009.** The letter of intent should provide an overview of the project and the anticipated costs for the project. To be eligible for consideration, the applicant must be affiliated with a public or private higher education or non-profit institution (Specific conditions for institutional eligibility are described in Section 3.1 of this document).

Letters of Intent will also be reviewed by the Screening Committee of the Center for Excellence from which the letter is submitted. The Screening Committee will provide recommendations on which letters of intent to invite for full proposals to the MLSRB for their review. In addition, the Advisory Boards of the Centers for Excellence may advise the MLSRB of the suitability of research topic areas relative to those selected for advancement in the region.

**The MLSRB will make initial selections of letter of intent submissions and issue invitations for the submission of full proposals no later than August 17, 2009.**

The MLSRB will either invite an applicant to submit a full proposal or decline the letter of intent. Every organization that submits a letter of intent will not be invited to submit a full proposal.

An invitation from the MLSRB to submit a full proposal does not assure a subsequent award. The decision to submit or not submit a full proposal in response to an invitation from the MLSRB is the responsibility of the applicant submitting the letter of intent.

## **Step Two**

The MLSRB intends to request full technical and cost proposals from selected letters of intent applicants for proposed efforts deemed as best fitting the evaluation criteria contained in this request for proposal. The MLSRB will specify the format for full proposals in the invitation to submit more detailed project information. From those proposals deemed as best qualified, the MLSRB intends to select successful proposals and make sub-awards of funding to the applicants(s), subject to funding availability.

Only applicants invited to apply may submit a full proposal. **The full proposal will be due September 14, 2009.** The MLSRB will distribute the full guidelines and instructions with the invitation to apply.

## **Research & Commercialization Missions of the Life Sciences Research Trust Fund**

Funds from the Life Sciences Trust Fund are to be used to explore creative ideas that increase the scope and capacity of life sciences research at public and private not-for-profit institutions in the State of Missouri as well as maximizing opportunities for developing companies and attracting commercial opportunities that build upon our research base.

### **Section 1: Grant Categories**

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#### **1.1 Life Sciences Trust Fund Research Grants (with the categories from below)**

The research grant program is meant to improve the quantity and quality of life sciences research at public and private not-for-profit institutions, including but not limited to basic research (including the discovery of new knowledge), translational research (including translating knowledge into a usable form), and clinical research (including the literal application of a therapy or intervention to determine its efficacy).

##### **1.1.1 *Project Proposals***

To support a discrete, specified, circumscribed project to be performed by the named investigator(s) in an area representing the investigator's specific interest and competencies based on the mission of the Missouri Life Sciences Research Trust Fund.

##### **1.1.2 *Equipment***

To improve the capabilities of institutions of higher education to conduct research and to educate scientists and engineers in areas important to agriculture research, animal science, plant science, medical devices, biomaterials and composite research, nanotechnology related to drug development and delivery, diagnostics, clinical imaging, and information technology related to human health. Proposals for purely instructional equipment are not eligible. This program assists in the acquisition, development, maintenance, and/or technical support of major research instrumentation that is, in general, too costly for support through other programs. Proposals may be for a single instrument, a large system of instruments, or multiple instruments that share a common research focus.

##### **1.1.3 *Eminent Scholars***

To provide the opportunity to authorized public universities to receive grants from the trust fund in order to create endowments for selected

eminent scholars to occupy chairs within the university. Additionally, this includes recruitment packages (graduate assistants, start-up packages, equipment).

#### **1.1.4 *Research Centers or Institutes of Excellence***

All proposed Research Centers or Institutes of Excellence are expected to clearly demonstrate the occurrence of innovative, rigorous, thematically focused, and productive research that emerges from interdependent components of the research program and that would not emerge from the mere collection of those individual components. Further, it is expected to be demonstrated that the use of the research center mechanism is essential to accomplishing the scientific aims required by the MLSRB. In addition to narrative, evidence of components' interdependency should be summarized in a table and organizational structure should be summarized in a diagram. While Centers or Institutes of Excellence should discuss how proposed activities will be completed within 3 years of receiving MLSRB funds, sustainability beyond MLSRB should be discussed.

#### **Two characteristics are necessary for meeting this set of requirements:**

**1.1.4 (a) Innovation** -- There must be evidence of scientific innovation. Centers/Institutes must be at the cutting edge of the science. Centers/Institutes are expected to provide the next generation of ideas and novel approaches. Incremental work, though valuable, should not be the focus of Center activities. Rather, it is expected that a Center/Institute will transform knowledge in the sciences it is studying.

**1.1.4 (b) Thematic integration and multidisciplinary involvement** -- There must be an overarching theme that integrates and focuses the Center/Institute. Further, there must be an essential relationship of each component part to the overall theme of the center and to the other components. Interdependency and integration of the projects should be clearly evident, so that the center does not appear to be a collection of independent research projects. The degree of coordination, interaction, and collaboration should foster original and creative contributions to scientific understanding over and above that which would be obtained if each component existed independently.

The type of integration proposed may be different for different genres of science. Some types may emphasize

conceptual integration and focus, while others may emphasize sharing of data, instruments, and other resources. Linkages should encourage an exchange of ideas and interactions among investigators that are relevant to the theme. There must be multidisciplinary involvement. That is, there must be research activity across a variety of disciplines or sub-disciplines such that multiple scientific perspectives and approaches are brought to bear on an area or question. There must be evidence that significant multidisciplinary collaborations will occur and contribute to thematic integration.

## **1.2 Life Sciences Trust Fund Commercialization Grants (with the categories from below)**

The commercialization grant program is meant to enhance technology transfer and technology commercialization derived from research at public and private not-for-profit institutions within the Centers for Excellence. In this sense, "technology transfer and technology commercialization" includes stages of the regular business cycle occurring after research and development of a life science technology, including but not limited to reduction to practice, proof of concept, and achieving federal Food and Drug Administration, United States Department of Agriculture, or other regulatory requirements in addition to the definition in section 348.251, RSMo. Applicants are encouraged to discuss the timeline, scale and scope of future commercialization opportunities, as well as demonstrate a need for MLSRB funds.

### **1.2.1 *Project Proposals***

To support a discrete, specified, circumscribed project to be performed by the named investigator(s) in an area representing the investigator's specific interest and competencies based on the mission of the Missouri Life Sciences Research Trust Fund.

### **1.2.2 *Equipment***

To improve the capabilities of institutions of higher education and not-for profit organizations to commercialize or facilitate the commercialization of discoveries, innovations and technologies derived from research activities in the areas of agriculture research, animal science, plant science, medical devices, biomaterials and composite research, nanotechnology related to drug development and delivery, diagnostics, clinical imaging, and information technology related to human health. Proposals for purely instructional equipment are not eligible. This program assists in the acquisition, development, maintenance, and/or technical support of major research

instrumentation by institutions that is, in general, too costly for support through other programs. Proposals may be for a single instrument, a large system of instruments, or multiple instruments that share a common research focus.

### **1.2.3 *Centers or Institutes of Excellence***

All proposed Centers or Institutes of Excellence are expected to clearly demonstrate or facilitate the occurrence of innovative, rigorous, thematically focused, and productive activities will result in commercial products or services in the areas of agriculture research, animal science, plant science, medical devices, biomaterials and composite research, nanotechnology related to drug development and delivery, diagnostics, clinical imaging, and information technology related to human health. Centers or Institutes of Excellence should contain from interdependent components that will result in outcomes that would not emerge from the mere collection of those individual components. Further, it is expected to be demonstrated that the use of the Center or Institutes of Excellence mechanism is essential to accomplishing the scientific aims required by the MLSRB. In addition to narrative, evidence of components' interdependency should be summarized in a table and organizational structure should be summarized in a diagram. While Centers or Institutes of Excellence should discuss how proposed activities will be completed within 3 years of receiving MLSRB funds, sustainability beyond MLSRB should be discussed.

#### **Two characteristics are necessary for meeting this set of requirements:**

**1.2.3 (a) Innovation** -- There must be evidence of scientific innovation. Centers/Institutes must be at the cutting edge of the science. Centers/Institutes are expected to provide a pathway to market for the next generation of ideas and approaches. It is expected that a Center/Institute will transform knowledge in the sciences it is studying into promising commercial and economic development opportunities for the state.

**1.2.3 (b) Thematic integration and multidisciplinary involvement** -- There must be an overarching theme that integrates and focuses the Center/Institute. Further, there must be an essential relationship of each component part to the overall theme of the center and to the other components. Interdependency and integration of the projects should be clearly evident, so that the center does not appear to be a collection of independent research commercialization projects.



The type of integration proposed may be different for different genres of science. Some types may emphasize conceptual integration and focus, while others may emphasize sharing of data, instruments, and other resources. Linkages should encourage an exchange of ideas and interactions among investigators that are relevant to the theme. There must be multidisciplinary involvement. That is, there must be research commercialization activity across a variety of disciplines or sub-disciplines such that multiple scientific perspectives and approaches are brought to bear on an area or question. There must be evidence that significant multidisciplinary collaborations will occur and contribute to thematic integration.

The degree of coordination, interaction, and collaboration should foster original and creative contributions to scientific understanding over and above that which would be obtained if each component existed independently.

## **Section 2: Funds Available in Each Category and Grant Limitations**

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### **Funds Available In Each Grant Category**

Eighty percent, or **\$10.4 million**, is available for Life Sciences Trust Fund research grants.

Twenty percent, or **\$ 2.6 million**, is available for Life Sciences Trust Fund commercialization grants.

It should be noted that no more than 10%, or **\$1.3 million**, shall be used for the construction of physical facilities or “bricks and mortar.”

Furthermore, a single Center for Excellence shall not receive more than 50% or **\$6.5 million**. It should also be noted that no single institution or organization shall receive in any consecutive three fiscal year period more than 40% of the moneys appropriated to the Life Sciences Trust Fund.

While no cap is being set for individual research and commercialization grants, applicants should be aware of the limitations of the fiscal year 2010 funds available to be allocated to the state’s 4 Centers for Excellence.

**Maximum Length of Grant:** 3 year (the subsequent year’s funding is contingent on the timely receipt of the annual report and auditing by the staff of the MLSRB.)

## **Section 3: Eligibility, Submission Requirements, and Rules of Submission**

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### **3.1 Eligibility**

All faculty and research scientists associated with Missouri's collection of public and private not-for-profit academic, research, or health care institutions or organizations engaged in competitive research in targeted fields consistent with the strategic purposes of the life science research board are eligible. Faculty and researchers are eligible provided they have permission from their respective institution to serve as a Principal Investigator. Also eligible are organizations and institutions actively engaged in technology transfer and technology commercialization.

The proposed activity should be completed within three years of receiving a grant from the MLSRB.

**Proposals not received by the submission deadline or proposals that exceed the page limits will be automatically eliminated from consideration.**

### **3.2 Matching Funds**

Matching funds are not necessarily a requirement for receiving grants from the Life Sciences Trust Fund, but clearly the ability to enhance and leverage state funds will be a factor in determining funding priorities given the limited resources available to the MLSRB.

### **3.3 Deadlines**

Letters of Intent may be mailed or emailed to the Life Sciences Research Board.

Proposals should be emailed to the Missouri Technology Corporation care of Life Sciences Research Board at **LifeSciencesResearchBoard@ded.mo.gov** **no later than 5:00 p.m., Wednesday, July 1, 2009.**

Hardcopies of proposals should be **express mailed and postmarked by Tuesday, June 30, 2009** to the following address:

Missouri Life Sciences Research Board  
Attention: Bill Anderson  
Truman State Office Building, Suite 680  
301 West High Street  
Jefferson City, Missouri 65102

### 3.4 Format and Contents

All Letters of Intent should be set to print on standard 8.5 by 11 inch paper with printing on one side of the page only. All margins should be at least 1 inch. Type size must be 12 points or larger with no more than 6 lines per inch. All pages except the cover page should be numbered at the bottom center of the page; this includes pages that are not part of the page limitations. Note: margins and type size should be consistent throughout each required section of the proposal.

Letters of Intent should be no longer than 5 pages in length and include the Cover Page found in Appendix A (Cover Page does not count toward page limitations). Proposals that do not follow the page limits will be eliminated from competition. Tables and figures are to be included within the page limitations. No appendices are allowed.

It is the responsibility of the investigator(s) to comply with any existing University or institutional policies and guidelines regarding the use of human subjects, animal welfare, conflict of interest, hazardous materials, etc. In addition, it is the responsibility of the investigator(s) to work with their University or institution's technology licensing and commercialization office on matters pertaining to intellectual property.

#### Section 4: Grant Timeline

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- **Letter of Intent RFP Issue:** May 27, 2009
- **Letter of Intent RFP Due to MLSRB:** July 1, 2009
- **Invitation for Full Grant:** Approximately August 17, 2009
- **Full Grant Application Due:** September 14, 2009
- **Grant Awards:** No later than December 10, 2009
- **Funding of Grant:** No later than 8 Weeks after Grant Contract is signed

#### Section 5: Letter of Intent Review Process

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The Letters of Intent will be reviewed by the screening committees in the Centers for Excellence (virtual) and submit their recommendations the MLSRB for final approval.

The Centers for Excellence, located in Kansas City, St. Louis, Springfield and Out-State Missouri, are comprised of a consortium of public and private not-for-profit academic, research, or health care institutions or organizations that have collectively at least 15 (fifteen) million dollars in annual research expenditures in the life sciences, including a collective minimum of two million dollars in basic research in life sciences.

The Centers for Excellence (virtual) have a chairman and functional advisory board that is representative of the consortium of public and private not-for-profit academic, research, or health care institutions or organizations associated with their center for excellence.

Each Center for Excellence will also be appointing a screening committee. The centers, through their screening committees, shall solicit, collect, prioritize, and forward to the Life Sciences Research Board proposed research initiatives for consideration for funding by the board. According to state statute, members of each screening committee shall generally be familiar with the life sciences and current trends and developments with either technical or scientific expertise in the life sciences with an understanding of life sciences and with an understanding of the application of the results of life sciences research. No member of a screening committee shall be employed by any public or private entity eligible to receive financial support from the Life Sciences Research Trust Fund.

***The decision to invite a full proposal for either the research or commercialization categories will be based on an evaluation of the letter of intent with respect to 2 broad criteria:***

- 1. Scientific and technical quality of the proposed activity.** Proposals must address an important and relevant question(s) related to the specific research area(s) of interest to the MLSRB. The proposed project must exhibit innovation, scientific rigor and originality. The following factors will be considered in determining the project proposal's scientific and technical quality:
  - Degree of Innovation
  - Expertise and research experience of the Principal Investigator, Co-Principal Investigators and collaborating investigators.
  - Quality and degree of collaboration(s) planned by the collaborating institutions and among the individual participants in the proposed activity and how those interactions will foster more rapid and higher quality progress toward goals of the proposed activity.
  - Inventory of any specialized facilities, equipment and/or other resources required for the proposed activity indicating if they are currently available or being sought for performance of the proposed activity including location and availability of access and how the requested resources are key to the collaborative research effort in enabling both high priority research and research collaboration.
  - Appropriate management of the proposed activity
  - Feasibility of the scope of work proposed for the period of funding.
  - Appropriateness of the proposed budget with regard to the scope of work.
- 2. Potential Impact of the Proposed Activity.** Proposals must exhibit the potential to provide a significant beneficial impact(s) to furthering the research and development capacity of the State of Missouri, job creation and the general health

and welfare of the citizens of the state. The following factors will be considered in determining the proposed activity's potential impact:

- Ability of the proposed activity to leverage additional funds from non-state sources (e.g. federal, foundation and private funding in the future to further support the specific research and/or commercialization activities
- Ability of the proposed activity to facilitate and promote the commercialization of discoveries and innovations that arise from research and development in the state. What are the timeline, scale, and scope of the commercialization opportunities?
- Impact of the proposed activity on the field of research
- Alignment of the proposed activity with the state's strategic economic development and research priorities
- Potential contribution to the health and quality of life of the people of Missouri in the intermediate and/or longer term.

## **Appendix A: LIFE SCIENCES RESEARCH BOARD FY2010 GRANT APPLICATION**

<b>Principal Investigator (last, first, middle):</b>  <hr style="border: 0; border-top: 1px solid black; margin: 5px 0;"/>	<b>Please Check One:</b>  <hr style="border: 0; border-top: 1px solid black; margin: 5px 0;"/> Life Sciences Trust Fund Research Grant  <b>Please Circle:</b> Project Proposals Equipment Eminent Scholars Centers or Institutes for Excellence  <hr style="border: 0; border-top: 1px solid black; margin: 5px 0;"/> Life Sciences Trust Fund Commercialization Grant  <b>Please Circle:</b> Project Proposals Equipment Centers or Institutes for Excellence
<b>Degree (s):</b>  <hr style="border: 0; border-top: 1px solid black; margin: 5px 0;"/>  <b>Position Title:</b>  <hr style="border: 0; border-top: 1px solid black; margin: 5px 0;"/>	<b>Mailing Address:</b>  <hr style="border: 0; border-top: 1px solid black; margin: 5px 0;"/> <hr style="border: 0; border-top: 1px solid black; margin: 5px 0;"/> <hr style="border: 0; border-top: 1px solid black; margin: 5px 0;"/>
<b>Telephone and Fax (<i>Area code, number and extension</i>)</b>  <b>TEL:</b> <hr style="border: 0; border-top: 1px solid black; margin: 0 20px;"/> <b>FAX:</b> <hr style="border: 0; border-top: 1px solid black; margin: 0 20px;"/>	<b>E-Mail Address:</b>  <hr style="border: 0; border-top: 1px solid black; margin: 5px 0;"/>
<b>Title of Project:</b>  <hr style="border: 0; border-top: 1px solid black; margin: 5px 0;"/> <hr style="border: 0; border-top: 1px solid black; margin: 5px 0;"/> <hr style="border: 0; border-top: 1px solid black; margin: 5px 0;"/>	<b>Project Start Date:</b>  <hr style="border: 0; border-top: 1px solid black; margin: 5px 0;"/>  <b>Project Duration:</b>  <hr style="border: 0; border-top: 1px solid black; margin: 5px 0;"/>
<b>Life Sciences Trust Fund Grant Request:</b>  \$ <hr style="border: 0; border-top: 1px solid black; margin: 0 20px;"/>	<b>Matching Funds Available:</b>  \$ <hr style="border: 0; border-top: 1px solid black; margin: 0 20px;"/>
<b>Collaborator Information (last, first, middle):</b>  <hr style="border: 0; border-top: 1px solid black; margin: 5px 0;"/>	<b>Degree (s):</b>  <hr style="border: 0; border-top: 1px solid black; margin: 5px 0;"/>
<b>Position Title:</b>  <hr style="border: 0; border-top: 1px solid black; margin: 5px 0;"/> <hr style="border: 0; border-top: 1px solid black; margin: 5px 0;"/>	<b>Mailing Address:</b>  <hr style="border: 0; border-top: 1px solid black; margin: 5px 0;"/> <hr style="border: 0; border-top: 1px solid black; margin: 5px 0;"/> <hr style="border: 0; border-top: 1px solid black; margin: 5px 0;"/>

**Attach a Brief Lay Summary (500 words or less explaining the purpose, relevance, and expected outcome of the proposed study or project)**